REMARKS

The restriction requirement between Claims 14-17 and Claims 18-22, Applicants' election of the former group, and the finality of the restriction requirement are acknowledged. The non-elected claims are being retained because there is a correlation between the subject matter of Claim 14 and related language in Claim 18.

The rejection of Claims 14-17 under 35 U.S.C. § 102 as anticipated by Negi et al. JP '656 is respectfully traversed.

The present invention is directed to a polymer blend containing two different ethylene-vinyl alcohol copolymer, with characteristics recited in detail in the claims. The claims call for the first polymer to have a higher ethylene content and a lower degree of saponification than the second polymer. In addition to the stated controls on weight, ethylene content, and degree of saponification, Claim 14 also specifies that (1) the blend of polymers has a morphology in which the particles of the second copolymer are dispersed in the first copolymer and (2) the mixture exhibits at least two crystal fusion peaks in its differential scanning calorimetry (DSC). Applicants have found that having these designated properties in conjunction with the stated controls on weight, ethylene content, and degree of saponification gives a blend that is particularly useful in making stretch-blow molded containers that contain also a layer of a thermoplastic polyester. The containers have good impact, delamination resistance, good gas barrier properties, and high transparency even without an adhesive layer; see page 3, lines 5-11 and the working examples.

Negi et al. JP '656 describes a polymer blend of EVOH polymers that is used in multilayer structures also containing a polypropylene (rather than a thermoplastic polyester) layer. An English translation of the reference is enclosed herewith to be used as the Examiner deems fit.

The reference describes an EVOH composition containing from 30-94 weight percent of a copolymer B and 70-6% by weight of a copolymer A, the blend exhibiting at least two endothermic peaks in its DSC. The reference states that the ethylene content of the first polymer is between 25 and 40 mol %, the degree of saponification of that first copolymer is at least 96%, the ethylene content of the second copolymer is between 45-60%, and the degree of saponification for the second copolymer is at least 96%. There is no statement in the reference regarding the control of the range of the degrees of saponification of the two polymers. As such, the reference does not teach or suggest controlling the difference in the degree of saponification between the first and second copolymers between 1 and 8 as called for in the present claims. The reference in fact indicates that the preferred degree of saponification between polymers is at least 98%, and the examples show a degree of saponification for the first copolymer of 99.6% and a degree of saponification for the second copolymer of 99.4% giving a difference in the degree of saponification between the polymers of merely 0.2%. The reference also does not show the need to control the ethylene contents and the differences in the contents required by the present claims. (Applicants have also determined that the degree of saponification of the second copolymer should be at least 92 wt.% to avoid the formation of "fish eyes"; see page 18, lines 21-25 of the specification.) Comparative Examples 2 and 3 of the present specification show that a small difference in ethylene content in the copolymer means there is a small melting point difference and that the resulting blend gave a single crystal fusion peak in the DSC. These resins moreover are completely miscible with each other and form a single phase. Bottles blow molded from layers of thermoplastic polyester and layers of these polymer blends had one or more of the following disadvantages: high transmission rates of oxygen and carbon dioxide, thermal instability of the polymer blend, poor impact delamination resistance, and poor gas-barrier

properties. The reference does not teach or suggest the subject matter claimed nor does the reference teach or suggest the advantages to be derived from the controls listed in these claims.

The rejection of Claims 14-17 under 35 U.S.C. § 102 as anticipated by or alternatively under 35 U.S.C. § 103 as unpatentable over Negi et al. JP '736 or JP '757, Hata et al. '447, or Tai et al. '358 is respectfully traversed.

The Examiner asserts that each of the references teaches polymer blends of two different EVOH copolymers wherein the copolymers satisfy all the claimed requirements. The Examiner asserts further that it would be reasonable to believe that the copolymer blends of the references would have the same properties as the claimed blend and that, if they were not identical, it would have been obvious to do so "because the disclosure of the inventive subject matter appears within the generic disclosure of the prior art." Applicants respectfully disagree for the reasons below.

Negi et al. JP '736, discussed in the specification in the paragraph bridging pages 2 and 3, describes an EVOH copolymer blend that can be used with layers of polyethylene terephthalate to form multilayered containers. (An English translation of this reference is enclosed also.) The EVOH polymer blend contains 100 parts by weight of a first copolymer and 5-40 parts by weight of a second copolymer. The reference specifies that the ethylene content of the first copolymer is less than or equal to the ethylene content of the second copolymer. The degree of saponification of the second copolymer is less than or equal to the degree of saponification of the first copolymer. The reference states that the greater the difference between the degree of saponification of the second copolymer and the degree of saponification of the first copolymer, the better the delamination resistance. The examples of JP '736 show a difference in saponification degree between the first and second copolymers

of 19.6, 29.6, and 39.6. The present claims, however, specify that the difference in the degree of saponification is between 1 and 8 and the working and comparative examples establish the need to operate within these (and the other stated) controls as explained in the discussion of the results in the Table; see the discussion at pages 48 and 49. Operating within the limits of the present claims allows one to form blow-molded containers with good delamination resistance. There is a significant (and patentable) distinction between 8 (the top of the claimed degree of saponification difference) and 19.6 (the smallest degree of saponification difference shown in Negi et al. '736). A person reading that disclosure would have no reason to restrict the degree of saponification values, including the stated difference in the degrees of saponification of the two polymers, to the ranges stated in the claims. The claims patentably define over Negi et al. JP '757 for the same reasons that the claims define over Negi et al. JP '736. The references do not teach or suggest the limits recited in the claims, the need therefore, nor the results achieved thereby.

Hata et al. '447 describes an EVOH polymer blend that forms the matrix for a dispersion of particles of an ethylene-(meth)acrylic acid copolymer. Thus, the reference is not directed to improvements in EVOH copolymer blends that are used in the production of stretch-blow molded containers having a thermoplastic polyester layer. The reference at column 5, lines 63-65 states in general terms that the EVOH "should preferably be a mixture of two or more kinds of EVOH differing in ethylene content and/or degree of hydrolysis" but there is nothing in the reference teaching or suggesting the particular control on the ranges of degree of saponification and ethylene content when determining differences in those contents between the first and second copolymer. There are no examples in the reference showing that an EVOH blend that satisfied the equations in the present claims. For the Examiner's

convenience, a table showing the degree of saponification used in the Hata et al. '447 examples appears below.

Example No.	EVOH(A)			EVOH(B)			difference	
	content (wt)	ET(A) (%)	SD(A) (%)	Content (wt)	ET(B) (%)	SD(B) (%)	ET(B) –ET(A)	SD(A) –SD(B)
1–6	85	32	99.6	5	51	96	19	3.6
1–7	85	38	99.7	5	51	96	13	3.7
1–8	85	38	99.7	5	44	99.7	6	0
1–9	50	32	99.6	40	51	96	19	3.6

Examples 1–20, 23, 25: composition Ex. 1–6 was used
Examples 2–6~9: composition Ex. 1–6~9 was used
Examples 3–6~9: composition Ex. 1–6~9 was used

The reported examples of course also contain an ethylene-(meth)acrylic acid copolymer and thus cannot teach or suggest that good impact delamination resistance can be achieved without the presence of that copolymer. The reported examples further do not guide a person of skill in the art to stay with the limits set by the present claims. The reference does not teach or suggest the claimed subject matter.

Tai et al. '358 describes a layer of an EVOH resin useful in stretch-blow molded containers wherein the DSC gives a single peak for crystal fusion. Present Claim 14 specifies that the blend "exhibits at least two crystal fusion peaks" and the subjects matter patentably differ for this reason alone. The reference composition has good impact delamination resistance but the gas-barrier properties are not as good as the gas-barrier properties of the composites of the present invention; the Examiner is directed to Comparative Example 1 and 2 in this application. Those examples show it is necessary to have a blend of polymers with the weight, ethylene content, degree of saponification, and the stated relationships between

the polymers to achieve stretch-blow molded containers with good impact delamination resistance, good gas-barrier properties against oxygen and carbon dioxide, and good transparency. The resins used in the melt displayed good thermal conductivity. These collective advantages are not taught or suggested by the reference. Accordingly, the rejection should be withdrawn.

The Examiner is thanked for acknowledging that a certified copy of the priority document was received in the parent application and for listing references submitted with Information Disclosure Statements. The Examiner will recall that copies of the non-U.S. references were filed in the parent application.

In view of the foregoing revisions and remarks, it is respectfully submitted that the application is in condition for allowance and a USPTO paper to those ends is earnestly solicited. The Examiner is requested to telephone the undersigned if additional changes are required in the case prior to allowance.

Respectfully submitted,

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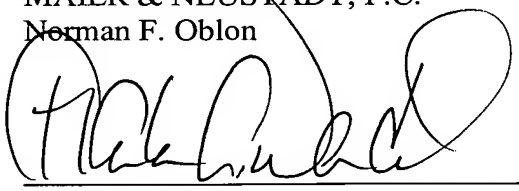

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Enclosures: English translations of JP '656 and JP '736